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COST-EFFECTIVENESS ANALYSIS OF BEVACIZUMAB AND RANIBIZUMAB IN NEOVASCULAR AGE-RELATED MACULAR DEGENERATION (AMD): A CLINICAL AND ECONOMIC COMPARISON OF TWO VASCULAR ENDOTHELIAL GROWTH FACTOR INHIBITOR TREATMENTS

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OBJECTIVE: To evaluate the cost-effectiveness of intravitreal bevacizumab to ranibizumab in patients with neovascular AMD. **METHODS:** A Markov Model was constructed to evaluate incremental cost-effectiveness ratios (ICER, $/quality-adjusted life years (QALY)) between bevacizumab and ranibizumab. Transitional probabilities for ranibizumab were extrapolated from two published trials, while bevacizumab probabilities were derived using a weighted mean average of institutional clinical outcome data as well as published studies. Utility values were obtained from a published source. Mortality rates were determined from the Centers for Disease Control (CDC) 2003 Life Tables. A payer perspective was taken with resource utilization and total direct costs estimated using the Centers for Medicare and Medicaid Services and VASDHS Decision Support System cost data. One-thousand patients with a baseline age of 65 and AMD diagnosis were simulated through the model for 20 years. Sensitivity analyses were performed using univariate and probabilistic sensitivity analysis (PSA) on all costs, transition probabilities and utility scores. Utilities and transitional probabilities were subject to a sensitivity analysis using beta distribution and cost by gamma distribution. An acceptability curve was calculated to determine the probability of cost-effectiveness of bevacizumab to ranibizumab. **RESULTS:** The average cost-effectiveness ratio (CER) for bevacizumab was $2,454 per QALY compared to $12,327 per QALY for ranibizumab. The ICER for ranibizumab was $258,355 for each additional QALY gained. The univariate analysis determined the two treatments were sensitive to drug cost. The break even point for equivalent CER was $208 for ranibizumab (varying drug costs) and $2399 for bevacizumab (varying drug costs). The PSA revealed an 89.8% probability of bevacizumab being more cost-effective with a Willingness-to-Pay (WTP). **CONCLUSION:** Based on a WTP defined at $50,000 per QALY, bevacizumab was more cost-effective than ranibizumab 89.8% of the time due to lower acquisition costs.

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COST–EFFECTIVE ANALYSIS OF PEGAPTANIB (MACUGEN®) AS COMPARED WITH RANIBIZUMAB (LUCENTIS®) FOR TREATING IN AGE–RELATED MACULAR DEGENERATION (AMD)

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OBJECTIVE: The purpose of the research was to conduct a cost-effectiveness model in order to analyze the value of Pegaptanib and Ranibizumab on the basis of the information and resources from the previous studies. **METHODS:** The costs of these modalities of AMD were calculated from published sources. The total costs included consumptions of medical resources and non-medical resources for AMD treatment. The annual unit drug costs were collected from the Red Book 2007 and were multiplied by administrations per year. The efficacy was defined as the loss of fewer than 15 letters from baseline visual acuity within a year with recommendation dosage. The analysis model was compared with placebo. We calculated Incremental Cost Effectiveness Ratio (ICER) and plotted the cost-effectiveness result. **RESULTS:** With a basic decision analysis, considering the probability and costs of the three treatment options, the base estimate of one year of total cost was $13,066 per person from the pegaptanib treatment, and $31,564 for ranibizumab. The total expected cost for placebo was $3152. The result in the ICER model shows that pegaptanib costs $10,746 per year to get only about 12% improvement in effectiveness compared to placebo, while ranibizumab costs $29,244 to gain about 37% improvement over placebo. Thus, compared to placebo, the ICER is $934,433 per unit increase in effectiveness when patients are treated by pegaptanib, and $80,121 in ranibizumab. **CONCLUSION:** Based on this cost-effectiveness model, both anti-VEGF agents are costly. Ranibizumab has higher probability of success versus in pegaptanib therapy (0.7 for pegaptanib vs. 0.95 for ranibizumab). However, the price of ranibizumab is much higher than pegaptanib. The ICER model suggests that ranibizumab maybe the first consideration of anti-VEGF drugs because based on this model, the ICER of ranibizumab is lower than pegaptanib. In future studies, there should be more investigations of quality-of-life factors.

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COST-EFFECTIVENESS OF THE TREATMENT FOR MODERATE TO SEVERE PSORIASIS IN MEXICO: INFLIXIMAB, ETANERCEPT AND EFALIZUMAB

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OBJECTIVE: Psoriasis is a dermatological disease with major consequences on the quality of life of patients. Biological treatments for this disease have an effectiveness which is equivalent to that of conventional drugs with fewer side effects. The objective of this analysis was to evaluate the cost-effectiveness of the treatment for moderate to severe psoriasis from an institutional perspective in Mexico. **METHODS:** To compare the cost and the effectiveness, a decision tree model was structured with a temporary horizon of 12 weeks. Only costs per drug were considered for this analysis, as the rest of the costs are similar for institutional buyers. Comparators: infliximab 5mg/kg given at weeks 0, 2, and 6; etanercept 25 mg twice weekly, etanercept 50 mg twice weekly and efalizumab 1mg/kg weekly. Effectiveness measure: percentage of patients with a PASI 75 (Psoriasis Area and Severity Index) response. Costs were estimated using prices of 2007, and an exchange rate of x pesos/dollar was used. Costs were estimated using 2007 prices and are expressed in USD (exchange rate of 10.93 pesos per USD). **RESULTS:** Costs expected per treatment type are: $6987 infliximab, $6422.70 efalizumab, $5555.40 etanercept 50 mg and $2777.70 etanercept 25 mg. The percentage of patients achieving a PASI 75 response per treatment type is: 84% for infliximab, 49% for etanercept 50 mg, 33% for etanercept 25 mg and 28% for efalizumab. The following ICERs were obtained for infliximab: $1007.70 vs. efalizumab, $8253.50 vs. etanercept 25 mg and $4090.50 vs. etanercept 50 mg. In the three cases, ICERs are less than three times the GDP per capita in Mexico. **CONCLUSION:** Infliximab is a cost-effective drug for the treatment of moderate to severe psoriasis.

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THE COST-EFFECTIVENESS OF RANIBIZUMAB (LUCENTIS®) IN TREATING PATIENTS WITH PREDOMINANTLY CLASSIC, MINIMALLY CLASSIC, AND OCCULT NEOVASCULAR AGE-RELATED MACULAR DEGENERATION (AMD)

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OBJECTIVE: Using a societal perspective, to evaluate the cost-effectiveness of Lucentis compared to Visudyne Photodynamic

Therapy (PDT) and best supportive care in treating patients with AMD. **METHODS:** A cost-effectiveness model was created using outcome data from the ANCHOR and MARINA clinical trials. The model operates on quarterly cycles and a 10-year time horizon. At baseline, Early Treatment Diabetic Retinopathy Study (ETDRS) visual acuity was 55 and average age was 77 in the base case. Cost of services were obtained from the CMS website, drug costs were obtained from ASP prices, and visual impairment costs were based on a prospective study by Schmier and colleagues. All costs were inflated to 2007 dollars using the Health Services CPI. Utility values were based on a time-tradeoff analysis conducted by Brown and colleagues. A 3% discount rate was used for both costs and QALYs. **RESULTS:** For predominantly classic AMD, Lucentis 0.5 mg was a dominant strategy compared to PDT and the Incremental Cost-Effectiveness Ratio (ICER) for Lucentis 0.5 mg relative to Lucentis 0.3 mg was $62,905/QALY. For patients with minimally classic or occult AMD, Lucentis 0.5 mg was a dominant strategy compared to best supportive care and the ICER for Lucentis 0.5 mg relative to Lucentis 0.3 mg was $322,367/QALY. Influential variables driving the results in this analysis include a patient's baseline visual acuity, costs associated with visual impairment, and the price of Lucentis. **CONCLUSION:** Despite its high treatment costs, Lucentis is a dominant strategy compared to PDT and best supportive care primarily because it prevents patients from reaching the highly expensive state of blindness. Treating AMD patients with Lucentis before they reach a legal blindness state can generate considerable cost-savings to society.

PSS16

A COST-EFFECTIVENESS ANALYSIS OF TWO TOPICAL OPHTHALMIC ANTIBIOTIC SOLUTIONS INDICATED FOR THE TREATMENT OF BACTERIAL CONJUNCTIVITIS

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OBJECTIVE: The objective of this study was to compare the cost-effectiveness of moxifloxacin 5 mg/ml ophthalmic solution (MF) to polymyxin B 10,000 units/trimethoprim 1mg/ml ophthalmic solution (PT) for the treatment of bacterial conjunctivitis (BC). **METHODS:** Physician-assessed BC early clinical cure rates were taken on day-2 of 7 day therapy from a multi-site, randomized, double-masked study comparing MF to PT. The clinical cure rates were used to calculate a number-needed-to-treat (NNT) estimate for the most efficacious alternative. NNT was then used as the measure of effect in an incremental cost-effectiveness analysis. Only the direct costs of drug therapy were considered in the economic analysis. The drug costs were derived from a standard reference source. The economic perspective was that of the payer. No cost discounting was performed due to the short time horizon of BC therapy. **RESULTS:** Thirty-two subjects (47 eyes) received MF and 30 subjects (43 eyes) received PT. At baseline there were no statistical differences in BC severity or duration, patient age, gender or ethnicity between the two treatment groups. After 2 days of topical ophthalmic antibiotic therapy, 83.3% of the MF patients were deemed clinically cured compared to 43.2% of the PT patients. The NTT for the MF group was estimated at 2.5. The MF incremental cost-effectiveness ratio (ICER), the cost of curing one more BC patient earlier, was estimated at $37.28. **CONCLUSION:** MF cures BC sooner than PT thus reducing the duration of illness experienced by BC patients. Since MF is a newer and more potent antibiotic than PT, it incurs additional costs. The incremental cost to obtain the additional benefit of an earlier cure from MF therapy is relatively small (< $0). Further research may demonstrate a lower cost-effectiveness ratio from MF therapy if the indirect costs of BC are considered.

PSS17

ECONOMIC EVALUATION OF MELOXICAM SOLUTION 0.030% RESPECT AN OPHTHALMIC SODIUM DICLOFENAC SOLUTION 0.1% ON THE EYES OF PATIENTS WHO UNDERWENT TO LASIK LASER EYE SURGERY AT THE IMMEDIATELY POST-OPERATIVE TIME

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OBJECTIVE: Compare the effectiveness and costs of the administration of an ophthalmic Meloxicam solution 0.030% with a sodium Diclofenac solution 0.1% on the eyes of patients who underwent to Lasik laser eye surgery at the immediately post-operative time. **METHODS:** Adopting the perspective of a health care payer, we developed a cost-effectiveness analysis. Temporary horizon was three months. A discounting rate was not used. The source of information of cost and effectiveness was a randomized clinical trial. The perspective was from Mexican Institute of social Security. The method used for cost was microcosting and case mix. The effectiveness was measured with different end points. The cost-effectiveness analysis was made for those variables with statistically significant differences. The evaluation was made with incremental analysis and net benefits approach. The sensitivity analyses was of one way, two ways and probabilistic. **RESULTS:** The highest cost was with Diclofenac solution (USD$9.29) that was 5.9% higher than Meloxicam ($8.74) the measured efficacy named Flare and ciliary injection was superior with Meloxicam compared with Diclofenac 148 vs. 149 for Flare and 150 vs 153 respectively ($p < 0.0001$) for ciliary injection, the cost for success obtained with Meloxicam was of USD$8.74 and USD$9.29 with Diclofenac, the incremental analysis show that Meloxicam is dominant over Diclofenac. Health Net Benefits, Monetary Net Benefits and the Acceptability curves were favourable for Meloxicam independent the willingness to pay. **CONCLUSION:** The Meloxicam solution was dominant over Diclofenac in the application on the ocular surface in patients who underwent to Lasik laser eye surgery in the immediate postoperative period. The sensitivity analysis was a robust basis for the study.

PSS18

COST-EFFECTIVENESS OF THE BIOLOGIC AGENTS UTILIZED IN THE TREATMENT OF CHRONIC PLAQUE PSORIASIS: A MARKOV MODEL

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OBJECTIVE: It is the objective of this study to estimate the cost per treatment success over a one-year timeframe of the five biologic therapies used to treat patients with moderate to severe psoriasis in the United States. **METHODS:** A Markov model was developed to compare the relative cost components in psoriasis treatment with biologics. Drug costs were based on wholesale acquisition cost with consideration of net contractual discounts and patient co-share or co-payment. Clinical efficacy, for both short-term (12 weeks) and longer-term (24+ weeks) treatment, was based on the published peer-reviewed literature. The primary economic endpoint was the cost of therapy (defined as the cost of drugs, laboratory, infusion, and professional services) per 75% improvement from baseline in the Psoriasis Area and Severity Index score (PASI 75) achieved. Analysis was conducted for each